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Contribution to the knowledge of the potter wasp genus *Euodynerus* Dalla Torre, 1904 (Hymenoptera, Vespidae, Eumeninae) from Vietnam, with description of a new species and a key to the Oriental fauna

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Abstract

Additional information on the genus *Euodynerus* Dalla Torre from Vietnam is given. One new species, *Euodynerus* (*Pareuodynerus*) *furvus* **sp. nov.**, is described and illustrated. Detailed descriptions of the male genitalia and new local records are presented for other species of the genus, including *E.* (*Euodynerus*) *dantici* (von Schulthess), *E.* (*Pareuodynerus*) *nipanicus* (von Schulthess), and *E.* (*P.*) *trilobus* (Fabricius). Of these, the male genitalia of *E. trilobus* are described for the first time. A key is provided to species of the genus *Euodynerus* occurring in the Oriental region.

Keywords

Euodynerus, identification key, new species, Oriental, *Pareuodynerus*, Vietnam

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Introduction

Euodynerus Dalla Torre, 1904 is a genus of solitary wasps in the subfamily Eumeninae and currently comprising more than 100 species worldwide in three subgenus *Euodynerus* Dalla Torre, 1904, *Incolepipona* Giordani Soika, 1994, and *Pareuodynerus* Blüthgen, 1938 (Giordani Soika 1994; Carpenter unpublished). Recently, *Incolepipona* was synonymized under *Pareuodynerus* by Selis et al. (2024). Fifteen species and six subspecies have been recorded in the Oriental region (Carpenter unpublished), of them, five species and one subspecies belong to the subgenus *Euodynerus*, characterized by the propodeum with two short and large teeth; and ten species belonging to the subgenus *Pareuodynerus*, these having long and sharp teeth on the dorsal surface of the propodeum behind the metanotum (Yamane 1990; Giordani Soika 1994; Gusenleitner 1998, 2008; Kim 2012; Ma et al. 2017; Selis et al. 2024). Male genitalia of several species were briefly described by Ma et al. (2017), including *E. carinatus* Ma, Chen, & Li, 2017, *E. dantici violaceipennis* Giordani Soika, 1973, *E. deqinensis* Ma, Chen, & Li, 2017, *E. ferrugineus* Ma, Chen, & Li, 2017, and *E. nipanicus* (von Schulthess, 1908). In Vietnam, three species have been recorded, of them, one species belongs to *Euodynerus* s. str. (*E. dantici* (von Schulthess, 1934)), and two species belong to *Pareuodynerus* (*E. nipanicus* (von Schulthess,1908), and *E. trilobus* (Fabricius, 1787)) (Dang et al. 2012).

Based on specimens deposited in the Institute of Ecology and Biological Resources (IEBR), additional notes are presented for the genus *Euodynerus* from Vietnam, with the description of a new species of the subgenus *Pareuodynerus*. A key is also provided to all species of *Euodynerus* from the Oriental region.

Methods

Morphological and color characters of mature specimens were observed using pinned and dried material under an Olympus SZ4 stereomicroscope, and measurements were made with an ocular micrometer. "Body length" indicates the combined lengths of the head, mesosoma, and the first two metasomal segments. The male terminal sterna and genitalia were dissected, treated with TE-Proteinase K solution, then incubated for 24 hours at 56 °C and mounted in hand-washing gel for observation and photography. Terminology follows Bohart and Stange (1965) and Carpenter and Cumming (1985), while measurements follow Nguyen (2020); terminology for male genitalia follows that of Kojima (1999) and Nguyen et al. (2023). Photographic images were made with a Nikon SMZ 800N digital stereomicroscope and an attached Sony α6000 digital camera. Images were stacked using Helicon Focus v.7, then grouped into plates using Adobe Photoshop CS6. The abbreviations F, S, and T (I, II, III, ...) refer to numbered flagellomeres, metasomal sterna, and metasomal terga, respectively.

Results

Genus *Euodynerus* Dalla Torre, 1904

Euodynerus Dalla Torre, 1904: 38 [name for section II of division III of subgenus *Leionotus* of genus *Odynerus* Latreille in de Saussure 1853: 177], declared available from date of publication by ICZN Opinion 893. Type species: *Vespa dantici* Rossi, 1790, by subsequent designation of Blüthgen 1938 (1937): 277, confirmed by ICZN Opinion 893.

Diagnosis. The genus *Euodynerus* can be distinguished from other genera of Oriental Eumeninae by the following combination of characters: Cephalic foveae in female not in raised area; anterior surface of pronotum without foveae, not densely punctate, pronotum without humeral carina; metanotum angled, without tubercles, not projecting over propodeum; propodeum not raised shelf-like to same level as metanotum, without deep fossae, with superior carinae, with submarginal carina and valvula not produced, without dorsolateral projections; tegula not evenly rounded posteriorly, emarginate adjoining parategula, exceeding parategula posteriorly; axillary fossa in dorsal view not slit-like, as wide as long, oval; TI sessile, in dorsal view about as wide as TII, not carinate, with translucent apical margin.

There are 16 valid species and six subspecies of the genus *Euodynerus* occurring in the Oriental region in two subgenera: *Euodynerus* (five species) and *Pareuodynerus* (11 species, including the new described species in this paper) (Table 1).

Subgenus *Euodynerus* Dalla Torre

Euodynerus dantici violaceipennis Giordani Soika, 1973

Fig. 1A–E

Odynerus dantici; von Schulthess 1934: 75.
Euodynerus dantici violaceipennis Giordani Soika 1973: 114.

Material examined. 2♀, 4♂, Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NP, 22°16'65"N, 108°11'08"E, 12 Aug. 2020, Nguyen Thi Phuong Lien et al leg.

Male genitalia. As in Fig. 1A–E. SVIII ~1.9 × as long as wide (at widest part), with basal margin slightly convex (Fig. 1A). Parameral spine without setae. Volsella flattened, spatulate, wide from inner aspect, without setae at top (Fig. 1B). Digitus quite thick, exceptionally wide from base to near apex, ~ 2.5 × as long as wide (at widest part), with exceptionally dense, long setae on its surface and left lateral margin, with sides almost parallel from the base then abruptly tapering near the top to form pointed apex (Fig. 1C). Penis valves long, much longer than basal apodeme (~ 1.7 × as long as basal apodeme); in ventral view, proximal part strongly

Table 1. List of valid species of *Euodynerus* Dalla Torre occurring in the Oriental region (based on Yamane, 1990; Giordani Soika, 1994; Gusenleitner, 1998, 2008; Kim, 2012; Ma et al. 2017).

Species	Sexes known	Distribution
Subgenus *Euodynerus* Dalla Torre, 1904		
E. carinatus Ma, Chen & Li, 2017	♀♂	China: Sichuan
E. dantici violaceipennis Giordani Soika, 1973	♀♂	China: Jiangsu, Guangdong, Hong Kong; Vietnam; Taiwan; Korea; Japan (including Ryûkyû Islands).
E. longisetulosus Giordani Soika, 1970	♂	India: Gujarat
E. rischi Gusenleitner, 2008	♂	Thailand
E. segregatus (Nurse, 1903)	♀	India: Gujarat
Subgenus *Pareuodynerus* Blüthgen, 1938		
E. adiacens Giordani Soika, 1973	♀	China: Guangdong
E. convergens Giordani Soika, 1994	♀	Japan (Bonin Islands)
E. deqinensis Ma, Chen & Li, 2017	♂	China: Yunnan
E. ferrugineus Ma, Chen & Li, 2017	♀♂	China: Yunnan
E. furvus **sp. nov.**	♀	Vietnam
E. koenigsmanni Giordani Soika, 1972	♀♂	India: Assam, Sikkim; Thailand; Malaysia.
E. nipanicus bifasciatus Gusenleitner, 1998	♀	Thailand; Laos.
E. nipanicus flavicornis Yamane	♀♂	Japan: Ryûkyû Islands.
E. nipanicus nipanicus (von Schulthess, 1908)	♀♂	China; Vietnam; Russia; ? Mongolia; Korea; Japan (including Ryûkyû Islands); ? Thailand
E. nipanicus ryukyuensis Tano, 1987	♀♂	Taiwan; Japan: Ryûkyû Islands
E. nipanicus tonkinensis Giordani Soika, 1973	♀♂	Vietnam; China: Beijing, Guangdong, Tianjin, Yunnan
E. paiensis Gusenleitner, 2008	♀♂	Thailand
E. similinipanicus Ma, Chen & Li, 2017	♀♂	China: Yunnan
E. trilobus (Fabricius, 1787)	♀♂	British Indian Ocean Territories; Mauritius (Chagos Archipelago); Réunion; China: Zhejiang, Shanghai, Jiangsu, Anhui, Jiangxi, Guagdong, Guangxi, Hainan, Sichuan, Gansu, Guizhou, Taiwan, Hong Kong; Vietnam; Malaysia; Indonesia: Java; Taiwan; Japan: Ryûkyû Islands.
E. unifasciatus Gusenleitner, 1998	♀	India: West Bengal

produced laterally into an almost square corner (Fig. 1D); in lateral view, apical part strongly produced into a sharp-pointed lobe (Fig. 1E), dorsal rod shorter than basal apodeme.

Remarks. It was mentioned by Ma et al. (2017) that *E. carinatus* Ma, Chen, & Li differs from *E. dantici* and other congeners by the clypeus distinctly longer than its width in both sexes, clypeus of female with an extremely strong longitudinal carina, cephalic fovea with dense setae, apex of FXI of male bent backward reaching the base of FVIII, and the volsella of the male wide but narrowed apically (wide apically in *E. dantici*). We examined specimens of *E. dantici* (Rossi, 1908) from Vietnam and found that *E. dantici* has a clypeus that is also longer than wide, with a strong longitudinal carina, and the shape of the digitus is quite similar to that of *E. carinatus* (fig. 3 in Ma et al. (2017) in that the digitus is wide but narrow apically (Fig. 1C). The only character different between *E. dantici* and *E. carinatus* is that the apex of FXI of the male is bent backward to reach the middle of FVIII. In the future, carefully dissecting

Figure 1. *Euodynerus dantici violaceipennis* Giordani Soika, 1973. Male genitalia **A** SVIII, dorsal view **B** inner aspect of paramere with volsella and digitus **C** digitus **D** aedeagus, ventral view **E** aedeagus, lateral view. Scale bars: 0.5 mm (**A, B**); 1 mm (**C, D, E**).

and examining the male genitalia of *E. carinatus* to determine the precise shapes of the digitus and penis valve will be needed, and for comparison with those of *E. dantici*, as these could be synonyms. For present, we leave the status of *E. carinatus* as it is but note the potential for synonymy in the future.

Distribution. China: Jiangsu, Guangdong, Hong Kong; Vietnam (new records: Bac Kan); Taiwan; Korea; Japan (including Ryûkyû Islands).

Subgenus *Pareuodynerus* Blüthgen

Euodynerus nipanicus tonkinensis Giordani Soika, 1973

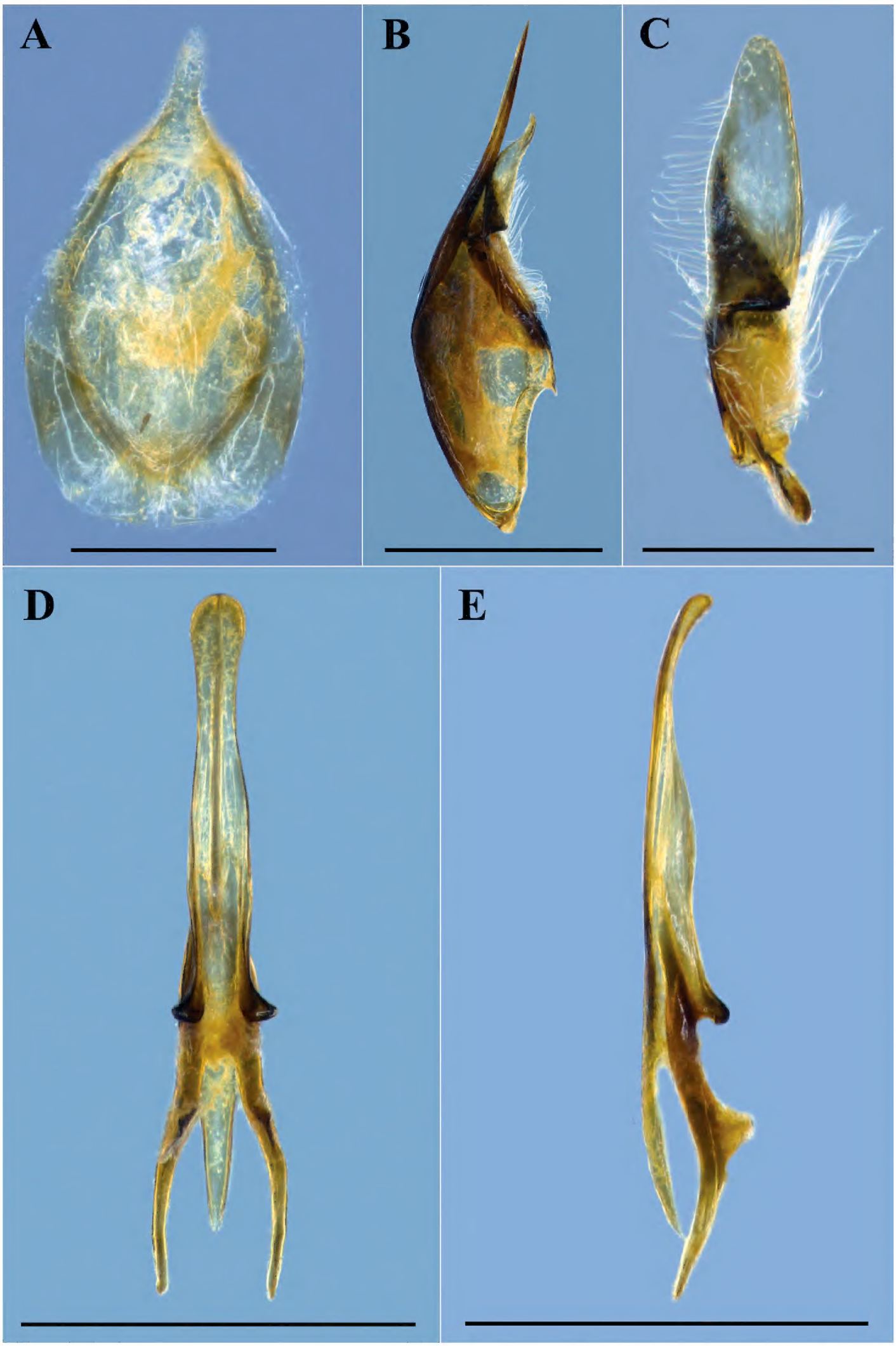
Fig. 2A–E

Euodynerus notatus tonkinensis Giordani Soika, 1973: 118.

Material examined. 1♂, Ha Giang, Quan Ba, Dong Ha, 23°03'48"N, 105°02'01"E, alt. 515 m, Nguyen Thi Phuong Lien leg.; 2♀, Lao Cai, Lao Cai city, 5 Apr. 2018, Nguyen Thi Phuong Lien, Nguyen Quang Cuong leg.; 1♂, Yen Bai, Tan Phuong, Khe Bin, 22°15'51.3"N, 104°38'07"E, alt. 500 m, 7 Sep. 2017, Nguyen Thi Phuong Lien, Nguyen Quang Cuong, Vu Thi Thanh Tam leg.; 3♀, 1♂, Tuyen Quang, Ham Yen, Phu Luu, Nam Nuong, Cham Chu NR, 22°12'44"N, 105°02'44"E, alt. 116 m, 30 Oct. 2018, Nguyen Thi Phuong Lien, Nguyen Quang Cuong, Luong Viet Tuan leg.; 1♀, Bac Kan, Cho Ra, Ba Be, alt. 140 m, 22 May 2018, Nguyen Thi Phuong Lien leg.; Lang Son, Huu Lung, Huu Lien, Huu Lien NR [1♂, 21°43'22.9"N, 106°22'40.2"E, alt. 370 m, 12 Jun. 2018; 1♂, 21°43'29.1"N, 106°22'31.1"E, alt. 257 m, 13 Jun. 2018], Nguyen Thi Phuong Lien et al. leg.; 1♀, Cai Kinh, 11°43'36.2"N, 109°11'57.7"E, alt. 129 m, 10 Jun. 2018, Nguyen Thi Phuong Lien et al. leg.; 1♀, Son La, Moc Chau, Chieng Nua, 20°43'18"N, 104°45'28"E, alt. 550 m, 23 Jun. 2020, Nguyen Thi Phuong Lien et al. leg.; 1♂, Thanh Hoa, Quan Hoa, Pu Hu NR, 20°31'32.1"N, 104°57'38.5"E, alt. 284 m, 12 Jun. 2016, Truong Xuan Lam et al. leg.; 1♂, Thanh Hoa, Quan Hoa, Trung Son, 1 Oct. 2017, Nguyen Thi Phuong Lien leg.

Male genitalia. As in Fig. 2A–E. SVIII ~1.7 × as long as wide (at widest part), with basal margin slightly convex (Fig. 2A). Parameral spine without setae. Volsella flattened, spatulate, wide on inner aspect, without setae at top (Fig. 2B). Digitus wide through almost its entire length, gradually and slightly narrowed to one-third apically, 3 × as long as wide (at widest part), surface without setae, with long and exceedingly sparse setae on left side (Fig. 2C). Penis valves longer than basal apodeme (~ 1.5 × as long as basal apodeme); in ventral view, proximal part produced laterally into almost triangular shape (Fig. 2D); in lateral view, apical part strongly produced into a blunted lobe (Fig. 2E), dorsal rod much shorter than basal apodeme.

Distribution. Vietnam (new records: Ha Giang, Yen Bai, Tuyen Quang, Bac Kan, Lang Son, Son La, Thanh Hoa); China: Beijing, Guangdong, Tianjin, Yunnan.



Figures 2. *Euodynerus nipanicus tonkinensis* Giordani Soika, 1973. Male genitalia **A** SVIII, dorsal view **B** inner aspect of paramere with volsella and digitus **C** digitus **D** aedeagus, ventral view **E** aedeagus, lateral view. Scale bars: 0.5 mm (**A, B**); 1 mm (**C, D, E**).

***Euodynerus trilobus* (Fabricius, 1787)**
Fig. 3A–E

Vespa triloba Fabricius, 1787: 290.
Euodynerus trilobus; van der Vecht and Fischer 1972: 101.

Material examined. 1♀, Lang Son, Huu Lung, Huu Lien, Huu Lien NR [1♂, 21°43'22.9"N, 106°22'40.2"E, alt. 370 m, 12 Jun. 2018, Nguyen Thi Phuong Lien et al. leg.; 1♀, Phu Tho, Cam Khe, Jun. 2016, Vu Thi Thuong leg.

Male genitalia. The genitalia of this species are described for the first time. Genitalia as in Fig. 3A–E. SVIII ~1.9 × as long as wide (at widest part), with basal margin almost straight (Fig. 3A). Parameral spine without setae. Volsella flattened, spatulate, wide on inner aspect, and with setae at top (Fig. 3B). Digitus thick, almost like an orthogonal trapezoid shape, wide from base to near rounded apex, 2 × as long as wide (at widest part), surface without setae, with some short setae at left side (Fig. 3C). Penis valves long, much longer than basal apodeme (~ 1.9 × as long as basal apodeme); in ventral view, proximal part slightly produced laterally into a rounded shape (Fig. 3D); in lateral view, apical part strongly produced into a bluntly pointed lobe (Fig. 3E), dorsal rod shorter than basal apodeme.

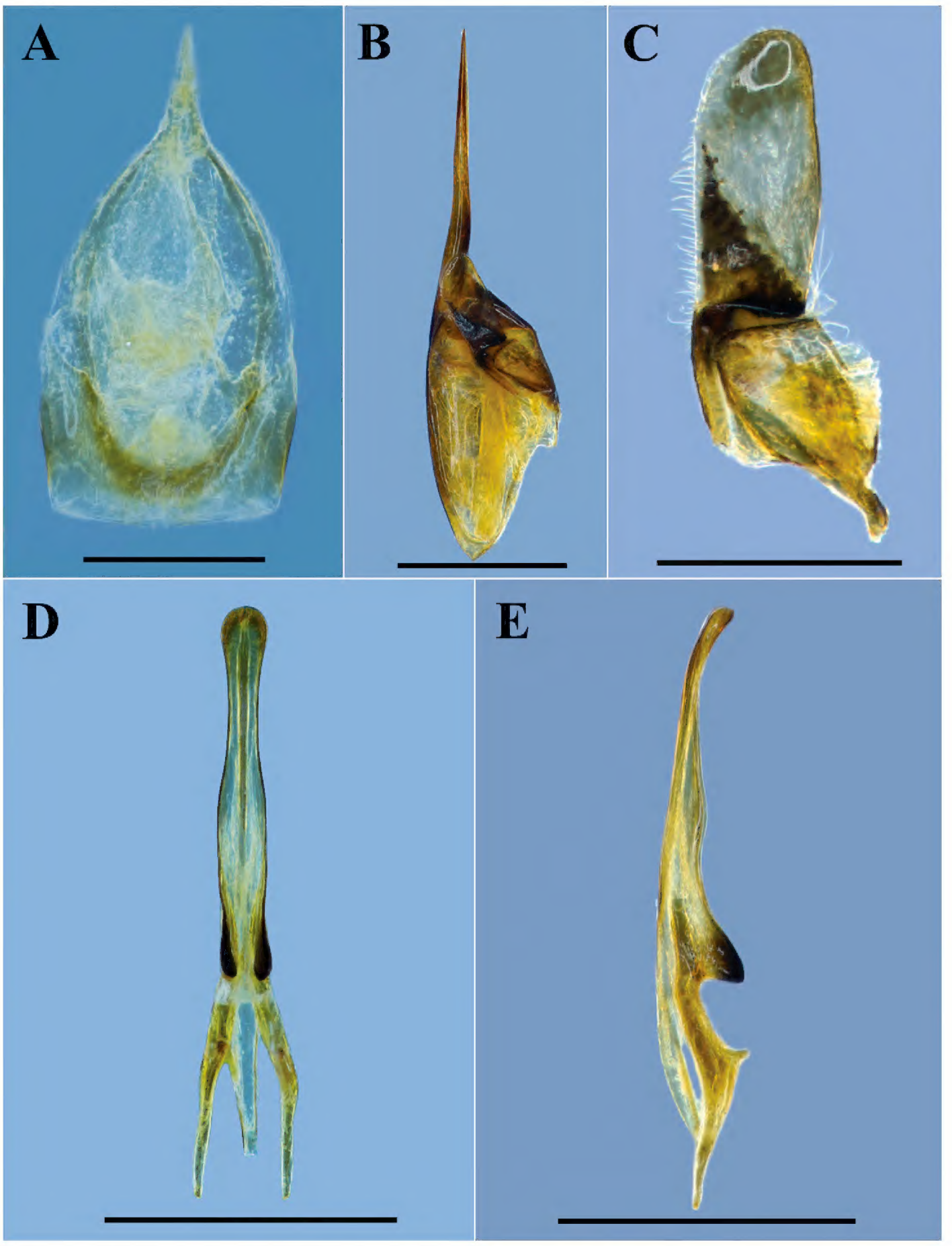
Distribution. British Indian Ocean Territories; Mauritius (Chagos Archipelago); Réunion; China: Zhejiang, Shanghai, Jiangsu, Anhui, Jiangxi, Guagdong, Guangxi, Hainan, Sichuan, Gansu, Guizhou, Taiwan, Hong Kong; Vietnam (new records: Lang Son); Malaysia; Indonesia: Java; Taiwan; Japan: Ryûkyû Islands.

***Euodynerus furvus* sp. nov.**
https://zoobank.org/C09CA52A-A10C-4B9C-84F2-5ACB32C25057
Figs 4A–D, 5A, B

Diagnosis. The female of this species can be distinguished from other species of Oriental *Euodynerus* by the following combination of characters: Clypeus as wide as high, apical teeth spaced about 1/5 of the maximum width of the clypeus, noticeably reflexed and carinate; pronotal lateral surface concave, with concavity clearly separated from the dorsal surface by a blunt carina; TII with apical margin widely lamellate; SII in lateral view quite strongly convex, without a mediolongitudinal furrow basally; TI–II covered with deep and strong punctures, with interspaces larger than puncture diameter; mesoscutum as long as wide, densely and coarsely covered with flat-bottomed punctures, with interspaces raised to form reticulation.

Material examined. ***Holotype*:** Vietnam: ♀; Lang Son province, Huu Lung, Huu Lien, Lan Nghe, Huu Lien NR, 21°33'48.6"N, 106°24'36.4"E, alt. 289 m, 11 Jun. 2018, Nguyen Thi Phuong Lien, Truong Xuan Lam, Tran Thi Ngat, Luong Viet Tuan, Nguyen Thi Thu Ha leg. ***Paratype*** (deposited in IEBR). Vietnam: Son La: 1♀, Moc Chau, Chieng Nua, 20°43'18"N, 104°45'28"E, alt. 550 m, 23 Jun. 2020, Nguyen Thi Phuong Lien et al. Leg.; Vinh Phuc: 1♀, Me Linh biodiversity station, 25 May 2013, Nguyen Thi Phuong Lien leg.; 1♀, Dak Lak, Ea Kar, Ea So, Ea So NR station N°5,

12°59'14.7"N, 108°40'17.8"E, alt. 78 m, 14 Apr. 2015, Nguyen Thi Phuong Lien, Nguyen Dac Dai, Nguyen Phuong Minh leg.; 1♀, Ha Tinh, Vu Quang, Sơn Kim 2, Vu Quang NP, Khe Che, 18°24'10.3"N 105°18'42.7"E, 10 Jul. 2023, Nguyen Thi Phuong Lien, Nguyen Quang Cuong, Tran Thi Ngat leg.



Figures 3. *Euodynerus trilobus* (Fabricius, 1787). Male genitalia **A** SVIII, dorsal view **B** inner aspect of paramere with volsella and digitus **C** digitus **D** aedeagus, ventral view **E** aedeagus, lateral view. Scale bars: 0.5 mm (**A, B**); 1 mm (**C, D, E**).

Figure 4. *Euodynerus furvus* sp. nov. Holotype, female **A** head, frontal view **B** head and mesosoma, dorsal view **C** pronotum, lateral view **D** metanotum, frontal view **E** propodeum, posterior view. Scale bar: 1 mm.

Description. Female. Body length 10–12 mm (holotype 12 mm); fore wing length 9.0–10.0 mm (holotype 10 mm).

Head in frontal view about 1.1 × as wide as high (Fig. 4A). Inner compound eye margins slightly converging below, interocular distance about 1.1 × wider at vertex than at clypeus (Fig. 4A). Clypeus in frontal view as wide as high, narrowly and weakly

emarginate at apex; apical teeth spaced about 1/5 of the maximum width of clypeus, noticeably reflexed and carinate; carina prolonged throughout apical sixth of clypeus, delimiting a clearly depressed area; basal margin convex and not contacting antennal toruli (Fig. 4A); clypeus in lateral view evenly convex in basal half, then straight to near apical margin, shallowly depressed near apex. Vertex with small cephalic foveae which placed at a large depress area which bordered by a faint arcuate carina; occipital carina complete, reflexed on upper three fourths of gena (Fig. 4B). Gena about 0.4 × as wide as compound eye at bottom of ocular sinus; distance from posterior ocellus to occipital carina about 1.8 × as distance from posterior ocellus to inner compound eye margin. Mandible with five teeth. Scape long, 4.7 × as long as apically wide; FI 1.6 × as long as wide, FII subquadrate, FIII–IX wider than long, FX bullet-shaped, 1.2 × as wide as high.

Mesosoma 1.2 × as long as wide in dorsal view (Fig. 4B). Pronotal carina complete and sharp, rounded on humeri; pronotum with lateral surface concave, concavity clearly separated from dorsal surface by a blunt carina (Fig. 4C). Mesoscutum as long as wide, in lateral view weakly convex, somewhat flattened posteriorly (Fig. 4B). Mesoscutellum slightly raised before meeting mesoscutum, disc of mesoscutellum almost flat; anterior margin crenate and forming 8–9 pits (Fig. 4B). Metanotum oblique and evenly sloping to propodeum, transition from horizontal to vertical surface forming a sharp corner and strongly crenulate when viewed from front (Fig. 4D). Epicnemial carina strong and complete, almost reaching pronotal margin. Propodeum excavated medially, posterior surface with a strong carina running from basal half to middle and a deep median furrow running from middle to apex; upper part of propodeum with well-distanced carinae forming a clearly visible large tooth at top (Fig. 4E), dorsal surface smoothly connected to posterior surface; border between posterior and lateral surfaces angled (Fig. 4E).

TI subcylindrical, with lateral margins almost parallel, as wide as TII, in dorsal view 1.7 × as wide as long. TII in dorsal view with weakly and evenly convex sides, 1.4 × as wide as long, with apical margin widely lamellate and reflexed (Fig. 5A). SII in lateral view quite strongly convex (Fig. 5B), without a basal longitudinal median furrow.

Body covered with short, silvery setae. Clypeus with sparse and strong punctures, bearing short setae; interspaces between punctures about as wide as or 2 × larger than puncture diameter, with minute punctures, area near apical margin with coarse sculpture. Frons with dense and coarse and shallow punctures, interspaces narrow and slightly raised to form week reticulation. Vertex and gena with punctures similar to those on frons but punctures deeper and stronger; lower part of gena with small and shallow punctures; vertex depress medially. Scape with sparse small punctures. Pronotum with coarse punctures, spaces between punctures narrow, strongly raised to form reticulation. Mesoscutum densely and coarsely covered with flat-bottomed punctures, with interspaces raised to form reticulation. Mesoscutellum and metanotum with punctures similar to those on mesoscutum. Tegula with sparse minute punctures. Mesepisternum with flat-bottomed punctures, larger and denser posterodorsally, smooth ventrally; mesepisternum with bigger and coarser punctures posterodorsally than on pronotum, barely punctured anteroventrally; epicnemial carina positioned at border between posterodorsal and anteroventral part. Metepisternum with weak short striae laterally and small punctures at upper parts of dorsal area, with sparse shallow punctures in ventral area. Propodeum with

Figure 5. *Euodynerus furvus* sp. nov. Holotype, female **A** metasomal segment, dorsal view **B** habitus. Scale bar:1 mm.

punctures on dorsal surface very large, interspaces strongly raised to form reticulation, punctures on lateral parts much smaller and shallower than in dorsal part, posterior surface shiny with strong sparse punctures, with oblique short striae lateral of median furrow.

TI–II covered with large and deep punctures, with interspaces as wide as or smaller than puncture diameter, punctures near apical margin of TII deeper and coarser than those on other parts of tergum, punctures on TIII–IV similar to those near apical margin of TII, punctures on TV smaller and weaker than those on TII–IV, TVI with minute punctures; punctures on sternum II deeper and larger than those on TII.

Color. Black; following parts light yellow: small spot on vertex behind compound eye, spots at anterior margin of pronotum, apical margin of TII, and a small spot at lateral corner of SII. Ventral surface of scape reddish brown. Wings dark brown.

Male. Unknown.

Distribution. Vietnam (Lang Son, Son La, Vinh Phuc, Ha Tinh, Dac Lak).

Etymology. The specific epithet is from the Latin adjective *furvus* (meaning, "black"), and refers to the black body of this species.

Remarks. This species is seemingly close to *E. koenigsmanni* Giordani Soika, 1972 by having the pronotum concave laterally and the clypeus noticeably reflexed and carinate, but can be separated by the following characters: TII with well-developed lamella and reflexed at apical margin (TII not reflexed at apical margin in *E. koenigsmanni*); SII without a basal mediolongitudinal furrow (SII with a short basal mediolongitudinal furrow in *E. koenigsmanni*).

Key to species of *Euodynerus* from the Oriental region

The key is written to all species of the genus *Euodynerus* from the Oriental region except *E. carinatus* due to the taxonomic problems that remain unresolved for this species (refer to comments above). Characters of *E.* (*E.*) *longisetulosus*, *E.* (*E.*) *rischi*, and *E.* (*E.*) *segregatus* were taken from Ma et al. (2017), Giordani Soika (1970), Gusenleitner (2008), and Nurse (1903). Characters of *E.* (*P.*) *deqinensis*, *E.* (*P.*) *ferrugineus*, and *E.* (*P.*) *similinipanicus* were taken from Ma et al. (2017); characters of *E.* (*P.*) *adiacens*, *E.* (*P.*) *koenigsmanni*, *E.* (*P.*) *paiensis*, and *E.* (*P.*) *unifasciatus* were taken from Giordani Soika (1972, 1973) and Gusenleitner (1998, 2008); characters of *E.* (*P.*) *nipanicus*, *E.* (*P.*) *trilobus*, and *E.* (*P.*) *furvus* sp. nov. were based on specimens from Vietnam. The present key is applicable to both females and males unless the sex is specified.

1 Dorsolateral part of propodeum with two short and large teeth behind metanotum; clypeus with elongate punctures that form long longitudinal rugosities; tegula with dense punctures ..... **2 (subgenus *Euodynerus* Dalla Torre)**

– Dorsolateral part of propodeum with two longer and sharp teeth behind metanotum; clypeus with round punctures; tegula almost smooth, with some superficial punctures ..... **6 (subgenus *Pareuodynerus* Blüthgen)**

2 Antenna with 11 antennomeres ..... **3 (female)**

– Antenna with 13 antennomeres ..... **4 (male)**

3 TI with sparse, shallow punctures, nearly twice as wide as long; clypeus with fine, shallow punctures; body ground color black, clypeus entirely yellow..... ..... ***E. segregatus* (Nurse)**

– TI with denser, deeper punctures, less than twice as wide as long; clypeus with coarser, deeper punctures; body ground color black, clypeus partly yellow..... .....***E. dantici* (Rossi)**

4 Clypeus wider than high; FXI extending backward but not reaching FVIII; body ground black, with extensive white markings .... ***E. rischi* Gusenleitner**

– Clypeus longer than wide; FXI extending backward to reach base of middle of FVIII; body ground black, with yellow markings **5**

5 All terga with elongate, dense, robust bristles; body ground black, with extensive yellow markings, pronotum, mesoscutellum, tegula, TIII–VII, and SII–VI entirely yellow ..... ***E. longisetulosus*** **Giordani Soika**

– All terga with much shorter, soft setae; body ground black, with less extensive yellow markings, pronotum, mesoscutellum, tegula, TIII–VII, and SII–VI black or partly yellow ..... ***E. dantici*** **(Rossi)**

6 Epicnemial carina absent; dorsolateral part of propodeum with two long, slender and exceedingly sharp teeth behind metanotum ..... ***E. convergens*** **Giordani Soika**

– Epicnemial carina present; dorsolateral part of propodeum with two shorter and blunter teeth behind metanotum **7**

7 Vertex with three distinct tubercles in ocellar region (one situated just behind anterior ocellus and apically bifid, remainder between posterior ocelli) ..... ***E. trilobus*** **(Fabricius)**

– Vertex without tubercles in ocellar region **8**

8 TII not reflexed at apical margin ..... ***E. koenigsmanni*** **Giordani Soika**

– TII reflexed at apical margin **9**

9 Tegula almost impunctate **10**

– Tegula finely punctate **11**

10 TI with weak punctures; clypeus of male almost flat medially; FXI of male extending backward to end of FX; with apical yellow bands on TI–IV ..... ***E. paiensis*** **Gusenleitner**

– TI with strong punctures; clypeus of male convex medially; FXI of male extending backward to middle of FVIII; with apical yellow bands on TI–VI ..... ***E. deqinensis*** **Ma, Chen & Li**

11 Clypeus wider than long **12**

– Clypeus longer than wide or as long as wide **13**

12 Clypeus clearly depressed in apical half; TI–II with dense punctures, interspaces much smaller than puncture diameter; clypeus of female with four large yellow spots; TI–II with yellow apical bands ..... ***E. adiacens*** **Giordani Soika**

– Clypeus not depressed in apical half; TI–TII with sparse punctures, interspaces slightly smaller than puncture diameter; clypeus of female with a yellow band basally, TII with a narrow yellow apical band ..... ***E. unifasciatus*** **Gusenleitner**

13 Pronotal lateral surfaces concave, concavity clearly separated from dorsal surface by a blunt carina; body ground almost entirely black ..... ***E. furvus*** **sp. nov.**

– Pronotal lateral surfaces not concave; body with extensive yellow or ferruginous marks **14**

14 Female cephalic fovea with dense setae; tegula with minute punctures; FXI of male extending backward to reach middle of FVIII ..... ***E. nipanicus*** **(von Schulthess)**

– Female cephalic fovea with sparse setae; tegula with superficial punctures; FXI of male extending backward to reach apex of FVIII **15**

15 Clypeus slightly longer than wide; SII with weak, short mediolongitudinal furrow basally; clypeus of female ferruginous except lateral margins yellow; antennal scape entirely ferruginous ..... ***E. ferrugineus* Ma, Chen & Li**

– Clypeus as long as wide; SII with strong mediolongitudinal furrow basally; clypeus of female ferruginous on basal half; antennal scape ferruginous ventrally ..... ***E. similinipanicus* Ma, Chen & Li**

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